



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

PHILOSOPHICAL
TRANSACTIONS
OF THE
ROYAL SOCIETY
OF
LONDON.

FOR THE YEAR MDCCCXXVI.

PART I.

Printed at the Expence of the Board of Longitude.

LONDON:

PRINTED BY W. NICOL, SUCCESSOR TO W. BULMER AND CO.
CLEVELAND-ROW, ST. JAMES'S;
AND SOLD BY G. AND W. NICOL, PALL-MALL, PRINTERS TO THE
ROYAL SOCIETY.

MDCCCXXVI.

PHILOSOPHICAL
TRANSACTIONS
OF THE
ROYAL SOCIETY
OF
LONDON.

FOR THE YEAR MDCCCXXVI.

PART II.

LONDON:

PRINTED BY W. NICOL, SUCCESSOR TO W. BULMER AND CO.
CLEVELAND-ROW, ST. JAMES'S;
AND SOLD BY G. AND W. NICOL, PALL-MALL, PRINTERS TO THE
ROYAL SOCIETY.

MDCCCXXVI.

ADVERTISEMENT.

THE Committee appointed by the *Royal Society* to direct the publication of the *Philosophical Transactions*, take this opportunity to acquaint the Public, that it fully appears, as well from the council-books and journals of the Society, as from repeated declarations which have been made in several former *Transactions*, that the printing of them was always, from time to time, the single act of the respective Secretaries, till the Forty-seventh Volume: the Society, as a Body, never interesting themselves any further in their publication, than by occasionally recommending the revival of them to some of their Secretaries, when, from the particular circumstances of their affairs, the *Transactions* had happened for any length of time to be intermitted. And this seems principally to have been done with a view to satisfy the Public, that their usual meetings were then continued, for the improvement of knowledge, and benefit of mankind, the great ends of their first institution by the Royal Charters, and which they have ever since steadily pursued.

But the Society being of late years greatly enlarged, and their communications more numerous, it was thought advisable that a Committee of their members should be appointed, to reconsider the papers read before them, and select out of them such as they should judge most proper for publication in the future *Transactions*; which was accordingly done upon the 26th of March, 1752. And the grounds of their choice are, and will continue to

be, the importance and singularity of the subjects, or the advantageous manner of treating them; without pretending to answer for the certainty of the facts, or propriety of the reasonings, contained in the several papers so published, which must still rest on the credit or judgment of their respective authors.

It is likewise necessary on this occasion to remark, that it is an established rule of the Society, to which they will always adhere, never to give their opinion, as a Body, upon any subject, either of Nature or Art, that comes before them. And therefore the thanks, which are frequently proposed from the Chair, to be given to the authors of such papers as are read at their accustomed meetings, or to the persons through whose hands they received them, are to be considered in no other light than as a matter of civility, in return for the respect shown to the Society by those communications. The like also is to be said with regard to the several projects, inventions, and curiosities of various kinds, which are often exhibited to the Society; the authors whereof, or those who exhibit them, frequently take the liberty to report, and even to certify in the public news-papers, that they have met with the highest applause and approbation. And therefore it is hoped, that no regard will hereafter be paid to such reports and public notices; which in some instances have been too lightly credited, to the dishonour of the Society.

CONTENTS.

I. *An Account of the construction and adjustment of the new Standards of Weights and Measures of the United Kingdom of Great Britain and Ireland.* By Captain HENRY KATER, F.R.S. - - - - - page 1

II. *Description of an improved Hygrometer.* By Mr. THOMAS JONES. Communicated by Captain HENRY KATER, F.R.S. 53

III. *Observations on the changes which have taken place in some antient alloys of copper.* By JOHN DAVY, M.D. F.R.S. In a Letter to Sir HUMPHRY DAVY, Bart. Pres. R.S. - - 55

IV. *Additional proofs of animal heat being influenced by the nerves.* By Sir EVERARD HOME, Bart. V.P.R.S. 60

V. *The Croonian Lecture. On the structure of a muscular fibre from which are derived its elongation and contraction.* By Sir EVERARD HOME, Bart. V.P.R.S. - - - - - 64

VI. *An account of the heat of July, 1825; together with some remarks upon sensible cold.* By W. HEBERDEN, M.D. F.R.S. - - - - - 69

VII. *On the transit instrument of the Cambridge Observatory; being a Supplement to a former Paper.* By ROBERT WOODHOUSE, Esq. Plumian Professor of Astronomy in the University of Cambridge, - - - - - 75

VIII. *Account of a series of observations, made in the summer of the year 1825, for the purpose of determining the difference of meridians of the Royal Observatories of Greenwich and Paris; drawn up by J. F. W. HERSCHEL, Esq. M.A. Sec. R.S. Communicated by the Board of Longitude,* - - - - - 77

IX. *Observations on the poison of the common toad.* By JOHN DAVY, M. D. F. R. S. - - - - page 127

X. *On the magnetizing power of the more refrangible solar rays.* By Mrs. M. SOMERVILLE. Communicated by W. SOMERVILLE, M. D. F. R. S. Feb. 2. 1826, - - - - 132

XI. *On the mutual action of sulphuric acid and naphthaline, and on a new acid produced.* By M. FARADAY, F. R. S. Corresponding Member of the Royal Academy of Sciences, &c. &c. Communicated January 12, 1826, - - - - 140

XII. *On the nervous circle which connects the voluntary muscles with the brain.* By CHARLES BELL, Esq. Communicated by the President, January 25, 1826, - - - - 163

XIII. *On the constitution of the atmosphere.* By JOHN DALTON, Esq. F. R. S. - - - - 174

PHILOSOPHICAL
TRANSACTIONS
OF THE
ROYAL SOCIETY
OF
LONDON.

FOR THE YEAR MDCCCXXVI.

PART III.

LONDON:

PRINTED BY W. NICOL, SUCCESSOR TO W. BULMER AND CO.
CLEVELAND-ROW, ST. JAMES'S;
AND SOLD BY G. AND W. NICOL, PALL-MALL, PRINTERS TO THE
ROYAL SOCIETY.

MDCCCXXVI.

CONTENTS.

XIV. *On the coagulation by heat of the fluid blood in an aneurismal tumour.* By Sir EVERARD HOME, Bart. V. P. R. S. Communicated January 23, 1826. - - - page 189

XV. *On the mathematical theory of suspension bridges, with tables for facilitating their construction.* By DAVIES GILBERT, Esq. V. P. R. S. &c. Communicated March 9, 1826. 202

XVI. *On magnetic influence in the solar rays.* By SAMUEL HUNTER CHRISTIE, Esq. M. A. F. R. S. of Trinity College, Cambridge; Fellow of the Cambridge Philosophical Society: of the Royal Military Academy. Communicated November 15, 1825. - - - - - 219

XVII. *On the mutual action of sulphuric acid and alcohol, with observations on the composition and properties of the resulting compound.* By Mr. HENRY HENNELL, chemical operator at Apothecaries' Hall. Communicated by W. T. BRANDE, Esq. Sec. R. S. - - - - - 240

XVIII. *On a method of expressing by signs the action of machinery.* By CHARLES BABBAGE, Esq. F. R. S. Communicated January 17, 1826. - - - - - 250

XIX. *On the parallax of the fixed stars.* By J. F. W. HERSCHEL, Esq. M. A. Sec. R. S. Communicated January 19, 1826. 266

XX. *A formula for expressing the decrement of human life.*
In a letter addressed to Sir EDWARD HYDE EAST, Bart. M. P.
F. R. S. By THOMAS YOUNG, M. D. For. Sec. R. S. Com-
municated February 2, 1826. - - - - - 281

XXI. *Account of an experiment on the elasticity of ice.* By
BENJAMIN BEVAN, Esq. In a Letter to Dr. THOMAS YOUNG,
For. Sec. R. S. - - - - - 304

XXII. *Results of the application of Captain KATER's floating*
collimator to the astronomical circle at the observatory of Trinity
College, Dublin, and remarks relative to those results. By the
Rev. J. BRINKLEY, D.D. F. R. S P. R. I. A. Communicated
by the Board of Longitude February 2, 1826. - - 307

XXIII. *On the means of facilitating the observation of distant*
stations in geodætical operations. By Lieutenant THOMAS
DRUMMOND, of the Royal Engineers. Communicated April 14,
1826, by Lieut. Col. H. COLBY, F. R. S. - - - 324

XXIV. *On the production and formation of pearls.* By Sir
EVERARD HOME, Bart. V. P. R. S. - - - - - 338

XXV. *On burrowing and boring marine animals.* By EDWARD
OSLER, Esq. Communicated February 15, 1826, by L. W.
DYLLWIN, Esq. F. R. S. - - - - - 342

XXVI. *An account of some experiments relative to the passage*
of radiant heat through glass screens. By the Rev. BADEN
Powell, M. A. F. R. S. of Oriel College, Oxford. Commu-
nicated March 9, 1826. - - - - - 372

XXVII. *The Bakerian Lecture. On the relations of electrical*
and chemical changes. By Sir HUMPHRY DAVY, Bart.
Pres. R. S. - - - - - 383

XXVIII. *On the discordances between the Sun's observed and computed Right Ascensions, as determined at the Blackman-street Observatory, in the years 1821 and 1822; with Experiments to show that they did not originate in instrumental derangement. Also a description of the seven-feet Transit with which the observations were procured, and upon which the experiments were made.* By JAMES SOUTH, Esq. F. R. S. Communicated June 1, 1826. - - - - - 423

XXIX. *On the existence of a limit to vaporization.* By M. FARADAY, F. R. S. Corresponding Member of the Royal Academy of Sciences at Paris, &c. Communicated May 26, 1826. - - - - - 484

XXX. *On electrical and magnetic rotations.* By CHARLES BABBAGE, Esq. F. R. S. &c. Communicated May 29, 1826. - - - - - 494

XXXI. *Case of a lady born blind, who received sight at an advanced age by the formation of an artificial pupil.* By JAMES WARDROP, Esq. F. R. S. Edin. Surgeon Extraordinary to the King, &c. Communicated by the President. - - - - - 529

XXXII. *On the progressive compression of water by high degrees of force, with some trials of its effects on other fluids.* By J. PERKINS. Communicated by W. H. WOLLASTON, M. D. V. P. R. S. May 25. - - - - - 541

XXXIII. *On the figure of the earth.* By GEORGE BIDDELL AIRY, M. A. Fellow of Trinity College, Cambridge. Communicated by J. F. W. HERSCHEL, Esq. Sec. R. S. 548

APPENDIX.

*Presents received by the Royal Society from 17th November 1825,
to 15th June 1826.*

Index.

*Meteorological Journal kept at the Apartments of the Royal
Society, by Order of the President and Council.*